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ABSTRACT

Reading teachers of the 1980s need to be confident not only about the key issues but also about their own knowledge of the issues when making decisions. Two issues from the seventies (reading as a developmental process and reading as a psycholinguistic process) combine with the broad notion of textlinguistics as important areas of knowledge for teachers. As childrens' ease in dealing with text increases, the textual components in reading (the internal structure of the sentence, cohesion, and the text's macrostructure or genre) will increase, as will the number and complexity of texts. Some investigations into these textlinguistic features are being undertaken, and one experiment that examines the effect of replacing words deleted from texts is particularly relevant. The method chosen to detect the ability of 96 15-year-old students to perceive cohesion was to alter the text so that one end of a cohesive tie was deleted. Deletions were made according to four main groups of cohesive ties--reference, substitution, conjunction, and lexical cohesion. Two-hundred sixty deletions were made throughout the three booklets used. Results showed that when one end of a cohesive tie was removed, the children's ability to restore it relied mainly on two sources of information--structure (from the sentence) and the cohesion present in that part of the text. From knowledge bases such as these, teachers might be helped to encourage their colleagues to support the teaching of reading along the reading development continuum in secondary schools. (HOD)

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The Importance of the Notion of Cohesion for Teachers of Reading

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The Importance of the Notion of Cohesion for Teachers of Reading

L. John Chapman

There are always many proposals competing with each other for the attention of teachers of reading: each has its advocates who claim that it is their insights or products that will greatly assist teachers to achieve their ultimate goal of literacy for all who are capable of it. This has always been so and probably always will be so and teachers of reading are well used to the clamour, however, they have to select consciously (or unconsciously) what the key issues are and what they will allow to influence their work in schools.

You may have noticed that I said unconscious selection might take place for it has been shown recently, (Hortse and Burke, 1977) that teachers have a model of reading in mind whether they realise it or not wher they are teaching and that this model determines to a large extent their practice. What model is most prevalent, and what knowledge base guides or influences this model, conscious or otherwise, and the consequent decision making of reading teachers in this country, is unknown. Nonetheless it is an important question for the answer to it is likely to be the basis for selecting priorities in schools today and in the future. Furthermore, in the eighties teachers of reading may need to exert their influence to a greater extent than ever before if the 'retreat

from print' noted in 'The Effective Use of Reading' (Lunzer and Gardiner, 1979 pp. 135 and 189) is to be halted. They need therefore, to be confident not only about the key issues but also the knowledge base for their decision making regarding those issues. What then are the knowledge bases that decide the key issues?

Deciding this requires a judgment to be made but it is possible, if a temporal vantage point is taken, to discern broad movements in our understanding of reading, movements that have stood the test of time and that have influenced our thinking about reading. These movements because of their power to survive, are probably as sound as any.

In a paper presented in August 1979 to the 5th Conference of the Australian Reading Association (Chapman, 1980) I drew attention to the expanding concept of reading that had occurred during the seventies and at the same time I was able to look forward at influences on the study of reading that could already be detected at the beginning of the eighties. In that paper I singled out five broad movements, and here I would like to mention 2 of those as being of some permanence.

Reading as a Developmental Process

I suggested that during the seventies, the concept of reading as a developmental process became firmly established, but that its importance is still only appreciated by a relatively few knowledgeable reading educators. At that A.R.A. Conference I mentioned this and made a further

> "There are some teachers who still regard reading as the province of the infant or remedial teachers. Reading as a developmental process involves the teacher of the sixteen-year old as much as the six year old. In fact, I would submit, that if it is not nurtured during these ten educationally formative years then I suspect that many of the new literates created in the infant schools are destined to become the near-illiterates who leave the secondary school."

Here then is a further point: reading needs nurturing.

A Psycholinguistic Process

The second movement that has increased our understanding was to consider reading as a psycholinguistic process. The bases of reading are a text and a person as the title of last year's Conference, The Reader and the Text, implied. The study of the former is, or has been, the concern of the psychologist, and the latter, the linguist. As the process is one of interaction, from these has come the hybrid, the psycholinguist. And as plant hybridisation testifies, the hybrid is often more vigorous in its growth than either of its parents.

These two broad movements, reading as a developmental process that requires nurturing and reading as a psycholinguistic process that requires understanding made a considerable impact during the seventies. For the eighties I proposed that, together with these would be the increasing influence on the linguistic element but under the broader notion of Textlinguistics. These then are the important areas of knowledge on which teachers might

base their decisions as to priorities for practice: their key issues.

Textlinguistics

In this paper, I would like to concentrate on some ideas from textlinguistics without loosing sight of its relationship with the other two now well established movements. The influence of textlinguistics augers well for providing further insights for the teacher of reading as the focus of interest moves back and forth along the reading continuum: learning to read↔reading to learn.

Textlinguistics, as was noted at the first Anglo-Scandinavian Conference (Chapman, 1979a) is an umbrella term covering what van Dijk (1978) calls,

> "a domain, focus or collection of problems studied in addition to those of classical sentence grammars and linguistics."

Such a wide area of study is quite appropriate to the study of reading which itself is many faceted and whose study is characteristically eclectic. (Chapman 1981)

One of the main contentions of textlinguistics is to move linguistic study beyond the boundary of the sentence traditionally the largest unit of study. That it ought to move 'beyond the sentence' was commented on by Pike (1964) some seventeen years ago, as he put it,

us to analyse texts for their cohesion. 'The concept of a tie makes it possible to analyse a text in terms of its cohesive properties, and give a systematic account of its patterns of texture'. (Halliday and Hasan, 1976, p.4).

An easily understood illustration of a cohesive tie is that of the pronoun. When the word 'she' is read, it is necessary to keep in mind the noun which has already been read in order to identify who 'she' is. The relationship between the antecedent and 'she' is an instance of a cohesive tie. Many such-like cohesive ties working together in a text provide the text with cohesion. It is this quality that makes the parts of a text hang together. Lewis Carol took advantage of this relationship in Alice in Wonderland thus:

> "They told me you had been to her,
> And mentioned me to him:
> She gave me a good character,
> But said I could not swim."

Here the antecedents of the pronouns are missing and although the rest of the structures within the verse are in tact, the reader is unable to tie (the cohesive) tie as one end of it is missing.

The cohesion proposals give five main groups of cohesion ties. These are Reference, Substitution, Ellipsis, Conjunction and the Lexical Cohesion groups. These main groups can be further sub-divided. This was given in more detail in a paper at the 15th Annual UKRA Conference (Chapman 1979b pp. 151-154). It is however, one thing to accept

> "beyond the sentence lie analysis, describable by technical procedures, and usable by the author for the generation of the literacy works through which he reports to us his observations".

Cohesion

Amongst the analyses that take us beyond the sentence are the proposals of Halliday and Hasan (1976) who draw attention to the cohesive quality of texts. It has been suggested (Chapman, Forthcoming) that these linguistic proposals might meet some of the new demands brought about by the concept of reading as a developmental process that spans the years of compulsory schooling. For these purposes what is required is a new understanding of what it is about reading that still needs developing in the later years of schooling. If reading is to receive support after the early years, reading teachers will have to look further than the smaller units of language to which they have become accustomed and focus attention on the sentence and on the ways in which words and groups of words signal to the reader that it is the author's intention that certain units of meaning carried by more than one sentence, are to be integrated. This requires not only sentence reading skills but an appreciation of the vertical connection of the otherwise linear left to right movement in reading.

Cohesion can be interpreted in practice, 'as the set of semantic resources for linking a sentence with what has gone before.' (Halliday and Hasan, 1976, p.10). Fundamental to this 'set of semantic resources' is the cohesive tie system. These cohesive ties provide texture to the text by the relation that exists between them. They also enable

that there are relationships, linguistic or otherwise, that appear plausible at the level of common sense or even by linguistic description but another to demonstrate the effectiveness of these relationships during reading.

Many researchers are now using these cohesion proposals in their work, and it is interesting to note here the work at The Ohio State University under Professor Martha King. There, in a study of cohesion in children's early writing they are using Halliday and Hasan's formulation of cohesion. In a report given earlier this year, they state that "children increasingly use endophoric references, conjunctions, and lexical items to produce integrated texts." The report continues,

> "In both the urban and suburban schools, children free their texts from situational constraints by end of grade two. The use of lexical ties between nouns, verbs and adjectives is a major strategy used in achieving explicit meaning relations over long stretches of text. This is followed by increased use of conjunctions and a greater variety of conjunctions."

(Report given at the 26th Annual I.R.A. Convention at New Orleans, May, 1981).

Although the study of cohesion is recent, evidence about it is growing as the aboveexample in children's early

writing shows. Other studies using cohesion are beginning to inform our understanding of the reading process and these were summarised (Chapman 1981b) recently. The findings appear to be that:

1. Children at five years of age, at least, use all five groups of cohesive ties in their oral language production.
2. Cohesive anaphoric forms interact with other types of text structure, (e.g. narrative/ non-narrative).
3. The location of the ends of the tie in terms of distance between the anaphor and the antecedent is important but inconsistent in its effect across texts.
4. There is strong evidence of a developmental pattern in the ability to comprehend cohesive anaphoric relationships which is irregular across cohesive ties.
5. Full passages should be used to investigate the nature of the complex interaction occurring between discourse level processing and anaphoric resolution and recall.

Cohesion and Reading Development

The evidence for statment (1) above comes from a study of cohesion in children's oral production (Garber, 1979). As children make use of all five groups of cohesive ties in their speech at an early age, it remains important to find out whether those same cohesive ties can be perceived adequately during the reading process. Furthermore, as there is strong evidence from a number of research studies of a developmental pattern in the ability of readers to

understand anaphoric situations, one of the fundamental relationships within cohesion, it is important to ascertain the extent and the pattern of this development vis-à-vis the reading of school texts.

Cohesion, Sentence Structure and Text Genre

The cohesive tie system has been mentioned above but for reading development it is necessary to note that Halliday and Hasan point out that, although cohesive relations are a necessary component of texture, it is not the whole story. They put it thus:

> 'In the most general terms there are two other components of texture. One is the textual structure that is internal to the sentence: the organisation of the sentence and its part in the way it relates to its environment. The other is the 'macrostructure' of the text, that establishes it as a text of a particular kind - conversation, narrative, lyric, commercial correspondence and so on. (Halliday and Hasan 1976, p.324)

If reading development proceeds along a continiuum as has been suggested, then it is likely that as children mature they will be able to process with ease increasing amounts of text. This being so then the textual components mentioned, the internal structure of the sentence, cohesion, and the text's macrostructure, or genre, already important in reading will become increasingly so as the number and complexity of texts grow.

text function? As I have pointed out before, it is necessary to move from the linguistic description to the psycholinguistic process. One experiment to illustrate this follows.

Increasing Amounts of Context

Some investigations into these textlinguistic features are being undertaken at the moment and one experiment is particularly relevant. This experiment examines the effect to replace words deleted from texts.

It is necessary first to explain the importance of the deletion and replacement procedure being used. If cohesion provides a text with integration that is, helps the reader recover the composite of the author's meaning intentions, then it is important to discover how this operates during reading. One way of attempting this is to take out, by deletion, some part of the cohesive tie and ask the reader to replace it. If the cohesion has been perceived in that particular text situation then it is fairly safe to assume that the reader by replacing the missing element will demonstrate that he or she has perceived cohesion.

Materials

As part of a major research project, a large number of school texts, appropriate to the reading of the 8 to 15 year old age groups of school children have been collected. A selection of extracts from these books has been prepared within the two major genre of texts, narrative and non-narrative. These selected extracts were put together into

four booklets, two (one narrative and one non-narrative) for the 8-10 year old group and two others were prepared in a similar fashion for the 11-15 year olds.

The main use of this collection was to provide a text base from which to find out the nature of the developmental pattern in the perception of cohesive ties by 8-15 year old children in terms of the books they actually read in school. The method chosen to detect the children's ability to perceive cohesion or not was to mutilate the text so that one end of a cohesive tie was deleted, e.g. pronoun. As mentioned above, it was argued that if the reader was able to replace one end of a tie, then the cohesive nature of that part of the extract contained within the two ends of the tie would have been perceived. It is further argued that this cohesive tie completion would be related during silent reading in particular to the reader's comprehension of the text.

Deletions were made according to four main groups of cohesive ties, (reference, substitution, conjunction and lexical cohesion), and their sub-categories. In addition each booklet had deletions that were of words deemed non-cohesive. Throughout the four booklets, 260 deletions were made such that each booklet contained 60 cohesive tie deletions and 5 non-cohesive tie deletions spread at random throughout the booklets.

The Aims of the Experiment

The aims of the experiment relate directly to the 3 components of texts, sentence structure, cohesion and macro-structure.

1. to discover the effects of the structural characteristics of the sentence containing the deletion;
2. to discover the effects of the cohesion of the extract on the completion of the deletion and
3. to compare the effects of 1 and 2 above with the effects of the full context of the passage on the completion of the deletion.

The experiment served two other subsidiary but important purposes; these were to seek for practice effects and to ascertain whether there were ceiling effects at the upper extent of the age range.

Three booklets were specially prepared from the text base as follows:

1. To meet Aim 1 above, a booklet containing only the sentences carrying the deletion was prepared. Sixty-nine such isolated sentences were assembled from the two booklets of the base of texts appropriate to the older age group. This composed the isolated sentence version (I).
2. To meet Aim 2, a further booklet was prepared which only contained the two ends of the cohesive tie under scrutiny. This was called the Tied Version. (T).
3. To meet Aim 3, another booklet containing the full context of the passages was prepared. This was the full Context Version. (C).

The Subjects

Nintey-six fifteen year old children from five mixed ability classes in a secondary school were asked to work through the booklets. All the children first completed Version I, the Isolated Sentence Version. A week later, the children were allocated to three groups such that,

Group A completion Version I again,
" B " Version T and
" C " Version C.

The Results

Two analyses of the results were carried out. Firstly, the mean gain scores of the three versions were calculated. The results, according to Reading Ages, are recorded in the figure below:

FIGURE 1 about here

The following comparisons were significant, i.e. between

1. The Isolated and Tied Versions
2. The Isolated and Context Versions
3. The Isolated and Isolated Versions

There was no significant difference between the I-Tied and I-Context version.

The second analysis of the results yielded the following data regarding the contribution of information provided

by the structural features of the sentence (The Isolated Version) and the cohesive features (The Tied Version). The histograms in the figures below show these results.

FIGURE 2 about here

In the case of the reference, substitution and conjunction groups of cohesive ties, readers use information from both sentence structure and cohesion to replace the deletion. This applies to each of the sub-categories of these main groupings. The picture is not the same however for the lexical group of cohesive ties where cohesion provides by far the greater amount of information for the replacement of the deleted word.

The other main finding is that the 'other' or non-cohesive items appear to be just that; there is no gain in score when the potential for cohesion is present.

Comments on the Results

From these results it is clear that when one end of a cohesive tie is removed children's ability to restore it relies mainly on two sources of information, one is structural (from the sentence) and the other comes from the cohesion present in that part of the text. The extent to which these two sources of information have been separated during the experiment allows some idea of the contribution made by each of these two sources. Although there are variations within the main groups of cohesive ties and their sub-catagories the results demonstrate that a good proportion of the gain in scores comes from the presence of the cohesive tie

This is particularly clear when the results of the gain in scores on those items designated cohesive from those designated non-cohesive. The latter show very little gain in score compared with that of the former. This result points clearly to some particular characteristic of the words used in the cohesive tie situation and supports Halliday and Hasan's notions regarding the functioning of cohesion in texts. They state that,

> "Cohesion occurs where the INTERPRETATION of some element in the discourse is dependent on that of another. The one PRESUPPOSES the other, in the sense that it cannot be effectively decoded except by recourse to it. When this happens, a relation of cohesion is set up, and the two elements, the presupposing and the presupposed, are thereby at least potentially integrated into the text." (Halliday and Hasan 1974, p.4)

A further interesting feature concerns the very small gain in mean scores between the Tied Version and the The Context Version over the Isolated Sentence Version. From these results it could be said that by asking for the replacement of one end of a cohesive tie is a way of detecting the ability of children to perceive cohesion in texts. It is furthermore possible, experimentally, to separate out two of the components of texture, that is the effects of the internal organisation of the sentence from that of cohesion.

Implications for Practice

The importance of cohesion for the teacher is demonstrated in two ways in this presentation. Firstly, textlinguistic evidence has been presented that shows the way in which cohesion affects the completion of a deletion. Such completion is taken as an indication of the successful perception of a cohesive tie relationship within the text. Words in non-cohesive situations showed no gain in score in the repeat situation. Words in cohesive positions showed a marked increase in mean scores.

It would seem necessary then for a reader to be able not only to read and understand the sentence, but when there is more than one sentence, to identify the connections between one sentence and another so as to integrate them and recover the texture of the text. More often than not during reading instruction teachers concentrate in the main on the left to right progress of sentences down the page. Cohesion requires an appreciation of the vertical arrangement of a text.

Secondly, first results with a finer analysis to come, indicate that texts that have ample cohesion make for better understanding. Reading for meaning is often claimed to be the purpose of the reading lesson, but rarely is the mechanics of the inter-relationships of the power of the text pointed out. The Halliday and Hasan proposals give a framework for this teaching. And it is as important for the writer of texts as it is for the reader of these texts.

One cautionary tale: do remember that cohesion is but one part of the intricate language system as illustrated here by Halliday and Hasan's analysis. Cohesion is not the only element but it is an important one.

In summary this work has many implications for the teaching of reading when viewed from a reading development perspective. It is clear that instruction strategies should take note of the three components of texture mentioned by Halliday and Hasan. These are the internal organisation of the sentence, the cohesion of the passage to be read and its macrostructure. From the comparison of the gain in scores between 'Isolated and Tied' and 'Isolated and Context' versions it is probable that to concentrate teaching on the cohesive tie relationships in a passage would be as beneficial as trying a holistic approach. This, however, needs spelling out with workshop trials with children to find the most effective formats for the work. It does, however, involve alerting children to the way cohesive ties operate in texts. This may be no bad thing for as the work at Ohio State University shows, the development of writing also exhibits these features.

From knowledge bases such as these teachers might be helped to encourage their colleagues to support the teaching of reading along the reading development continuum in secondary schools. A great deal has been learned during the last two decades about the developmental nature of this psycholinguistic process. In the next more is likely to come

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FIGURE 1

Gain in mean scores in completion of deletions in three conditions: isolated (I), tied (T) and context (C) according to level of reading ability.

Reading Ability	I→I	I→T	I→C
Good	3.5	12.8	14.9
Average	0.7	11.7	9.4
Poor	1.6	8.7	7.3
All	2.2	10.8	10.4

FIGURE 2 .

Percentage scores on Isolated and Tied Versions Booklets

Isolated scores expressed as a percentage

Gain score, expressed as a percentage, on Tied Version